

REMARKS

35 U.S.C § 112

The examiner rejected claims 9-11 and 15 under 35. U.S.C. 112 second paragraph. The Examiner states:

Claims 9-11 recites the limitation "the heating element" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites that the "heat producing element disposed in the fuel egress port". Then claims 10 and 11 recite that the heating element is in the interior of the cartridge. It is unclear as to the exact location of the heating element in claims 10 and 11 since as first recited the element is in a port and then it is in the interior of the cartridge. The element in question can only be in one location at a time. ...

Claim 15 depends from canceled claim 13 and is therefore indefinite.

Claims 9-11 and 15 have been amended.

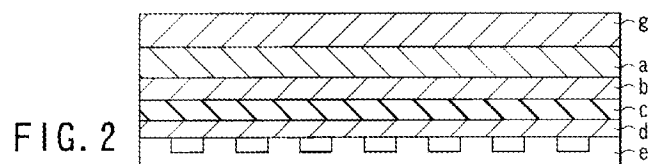
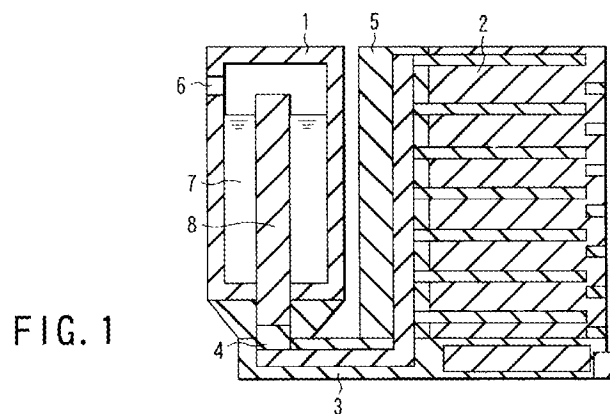
35 U.S.C § 102

The examiner rejected claims 1, 8 and 11 under 35. U.S.C. 102(a/e) as being anticipated by Yonetsu (US Patent No. 6,506,513).

The Examiner states:

As seen in the figures, Yonetsu teaches a fuel cartridge, that is prismatic in shape, having a housing 1, a fuel egress port 3 that contains a heat producing element "a" (i.e. vaporizing plate, Figure 2), which is also in the interior of the cartridge (figures 13-148) and spaces a vapor portion of the cartridge from a liquid reservoir of the cartridge, a bladder 16 (figure 78) that holds a liquid fuel 7 such as methanol (column 5, lines 4-8) that is supplied to a direct methanol fuel cell 2 (column 2, line 34 - column 3, line 19, column 4, line 26 - column 5, line 35 and column 7, line 47 - column 7 line 62).

Applicant disagrees and contends that Yonetsu neither discloses nor renders obvious "a heat producing element disposed in the fuel egress port," as recited in claim 1. The examiner seems to base his contention on Figures 1 and 2 of Yonetsu, which are reproduced below for convenience.



The examiner seems to construe the pathway 3 as a fuel egress port and argues that the vaporizing plate (element 'a' in FIG. 2) to be a part of the pathway 3. Applicant disagrees. The vaporizing plate, which the examiner construes to be the heat producing element, is part of a unit cell as shown in FIG. 2. The unit cell in turn is a part of a stacked body (element 2 in FIG. 1) and not disposed in the pathway 3, as the examiner contends. In stark contrast, Yonetsu clearly describes the pathway 3 to be a separate entity from the stacked body 2, which in fact introduces liquid fuel from a fuel tank to the stacked body 2. As described by Yonetsu:

The fuel cell shown in FIG. 1 consists essentially of a liquid fuel tank 1, a stacked body 2, and a pathway 3 for introducing a liquid fuel from the liquid fuel tank 1 into the stacked body 2.

FIG. 2 exemplifies the construction of the unit cell. As shown in the drawing, the unit cell consists of a vaporizing plate a, an anode b, an electrolyte membrane c, a cathode d, and a gas channel e. In stacking a plurality of unit cells one upon the other, a separator is interposed between two adjacent unit cells.

Yonetsu describes the pathway 3 as a fine capillary tube and fails to disclose or even suggest the pathway to include a heat producing element.

Independent claim 1 is therefore patentable over Yonetsu for at least the foregoing reasons. Dependent claims 8-11 are patentable for at least the reasons for which claim 1 is patentable.

35 U.S.C § 103

The examiner rejected claims 9 and 10 under 35. U.S.C. 103(a) as being unpatentable over Yonetsu and further in view of Gore (US 2004/0202904). Claims 9 and 10 are patentable for at least the reasons for which claim 1 is patentable. As with Yonetsu, Gore also does not disclose or suggest a heat producing element disposed in a fuel egress port and fails to detract from the patentability of claims 9 and 10.

The examiner also rejected claims 12, 14, 16 and 17 under 35. U.S.C. 103(a) as being unpatentable over Yonetsu. The examiner states:

Yonetsu as discussed above is incorporated herein. Yonetsu further teaches in figure 7A a piston 30 (i.e. fuel sealing part) urged against the fuel via spring 14 (column 7, lines 48-62).

Yonetsu does not teach the piston and the bladder in the same embodiment.

At the time of the invention it would have been obvious to one having ordinary skill in the art to combine the embodiments of figures 7A and 78 of Yonetsu in order to provide a fuel cartridge with multiple solutions for properly containing the methanol fuel as well as providing sufficient means to push out the fuel through the fuel outlet port thereby providing the necessary fuel to the fuel cell in order for the fuel cell to operate. The above combination such as a piston urged against a bladder, according to known methods by Yonetsu yields the predictable result of providing a sufficient means to push out the fuel through the fuel outlet port thereby providing the necessary fuel to the fuel cell in order for the fuel cell to operate.

Yonetsu neither discloses nor renders obvious “a heat producing element disposed in the fuel egress port,” as recited in claim 12. Claim 12 is therefore patentable for at least analogous reasons for which claim 1 is patentable. Dependent claims 14-17 are patentable for at least the reasons for which claim 12 is patentable.

Double Patenting

The Examiner provisionally rejected claims 1, 8, 12 and 17 on the ground of double patenting as follows:

Claims 1, 8, 12 and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11 and 12 of copending Application No. 10/664,818. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 10/644,818 fully encompass the scope of instant claims the only difference is claim 12 provides further structure for the storage of the fuel which has been found in the prior art.

Applicant disagrees. Neither claim 11 nor claim 12 of co-pending Application No. 10/664,818 includes a heat producing element disposed in the fuel egress port, as recited in amended claims 1 and 12. Claims 11 and 12 of Application No. 10/664,818 also do not include a bladder or piston as recited in independent claim 12.

Claims 8 and 17 are patentably distinct from claims 11 and 12 of co-pending Application No. 10/664,818 at least for the reasons mentioned with respect to claims 1 and 12 of the instant application.

No fees are due. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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